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Refuting Stephen Hawking

In his "Brief History of Time" Stephen Hawking makes the following Statement: "Galileo perhaps more than any other single person was Responsible for the birth of modern science. His renowned conflict with the Catholic Church was central to his philosophy, for Galileo was the first to argue that man could hope to understand how the world works, and, moreover that we could do this by observing the real world." If we paraphrase his beliefs, they are as follows.

- 1.) Modern science is radically different from any science that came before it.
- 2.) Galileo was largely responsible for its birth.
- 3.) Catholicism is at least in some ways, or at least was in Galileo's time, intrinsically opposed to modern science.
- 4.) Galileo was the first to argue that man could hope to understand that the world works.
- 5.) He was first to argue that we could understand it by observing it.

This presentation will address these assertions which are simply not true but are a product of a combination of historical ignorance and/or revision. By focusing on the relationship of faith, reason and science we can correct these mistakes and misconceptions of the past. Sources for our conclusions in addition to the references cited at the end of the paper include Jacques Maritain's, "The degrees Of Knowledge" and Anthony Rizzi's "The Science Before Science, A Guide to Thinking in the 21st Century." The voluminous works of the late Father Stanley Jaki are also recommended without reservation.

The Church has always sponsored knowledge.
The Protestants attacked the Church because the Church is so open
to science.

Ideas have consequences
that are self-refuting.

Faith, Reason and Science

We will begin with a brief review of Pope John Paul II's salient conclusions in "Faith and Reason." A failure to incorporate faith and reason in evaluating which truths science can validly attain or cannot attain deteriorates into scientism and ultimately into skepticism, nihilism and despair. Scientism is best defined as the thesis that the methods of natural science should be used in all areas of investigation including philosophy, the humanities and the social sciences. It is the belief that only such methods can be fruitfully applied in the pursuit of knowledge. Scientism essentially began during the Enlightenment and today is best described as reductive materialism employing a rigid methodological naturalism. As such it is a false metaphysics leading to moral relativism, political correctness and destructive class envy masked as multiculturalism.

John Paul repeatedly noted that "faith and reason are like two wings on which the human spirit rises to the contemplation of truth; and God has placed in the human heart a desire to know the truth - in a word to know himself - so that by knowing and loving God, men and women may also come to know the fullness of truth about themselves." He noted that human reason, reduced in modern times to empirical rationality, has forgotten what it means to be human with tragic consequences. With the loss of the standards of order, goodness and intelligibility, our culture has reduced morality to relativism a utilitarian calculus devoid of true reason. How many times have we heard: "that may be true or right for you but it is not necessarily true or right for me."

One symptom of this is the growth of scientism fueled by the hostile atheism of such writers as Richard Dawkins, Daniel Dennett, Christopher Hitchens, and Sam Lewis. As John Paul pointed out, scientism has at its roots an incomplete understanding of knowledge, of reality and of humanity, which can only be reversed by a return to first principles, in this case the principles of natural philosophy.

In returning to the work of Saint Thomas, the exemplar of natural philosophy, it is possible to rediscover science proper and to find thereby a means of returning the world to an integrated view of faith and reason. The late Father Stanley Jaki in his sentinel work "The Relevance of Physics" discusses in depth the fate of physics as a result of scientism. We will return to this topic again. ●

The official Catholic position on faith and reason was most authoritatively summarized by the first Vatican Council in its "Dogmatic Constitution on Catholic Faith" which contained a chapter dedicated to the theme of faith and reason. Vatican I endorsed the works of Saint Thomas and a decade later, in 1879, Pope Leo XIII published his encyclical "Aeterni Patris" proposing Saint Thomas as the thinker whose synthesis of faith and reason should be accepted as a solid foundation from which to grapple with more recent questions in philosophy and science. Pope John Paul does not, of course, contradict Vatican I. He takes over from Vatican I the familiar ideas that reason has the power to establish the existence of God and the preambles of faith and that that faith confirms truths that reason cannot grasp except with great difficulty. That faith also embraces mysteries that lie entirely beyond the range of reason and that reason can render even these revealed mysteries to some degree intelligible.

Also agreeing with Vatican I, Pope John Paul opposes both a rationalism that dismisses the input of faith and a fideism that distrusts the guidance of reason. By the end of the twentieth century, the proud boosters of autonomous reason, setting themselves up against the claims of faith, had been severely muted. The prevailing mood was one of metaphysical agnosticism. Some intellectuals clinging to a remnant of rationalism professed a scientism that restricted genuine knowledge to the sphere of measurable physical realities. Logical positivists dismissed all statements not verifiable by experience as "non-cognitive" deliverances of emotion, convention or simple caprice. Philosophy for its part has practically abandoned the pursuit of the transcendent or metaphysical truth. It has narrowed its horizons to naturalistic phenomenology, linguistic study, the

interpretation of texts, and pragmatic strategy with radical pluralism. Unlike Vatican I, the Pope refrained from lamentations and angry condemnations. In the spirit of Vatican II, he prefers to use what he calls "the medicine of mercy." He sees himself as a friend and ally, called to help philosophy to extricate itself from its present state of impoverishment. He exhorts it to recover its original vocation of being a quest for wisdom. Like Aristotle, he notes that all philosophy begins in wonder. The mind is drawn to ask about the meaning of life in the face of suffering and inevitable death. He portrays the truth of revelation as a fulfillment of the universal human longing for meaning and truth. In agreement with twentieth century Jewish philosophers such as Martin Buber and Emmanuel Levinas, he is convinced that friendship and dialogue can best sustain reason in its search for the truth. Among the merits of contemporary philosophy, the Pope points out its welcome emphasis on personhood and some subjectivity. (e.g., W. Norris Clarke, S.J. "Person and Being" - Aquinas Lecture 1993). In this lecture Father Clarke attempts to draw out and highlight a dynamic and relational notion of person which seems to be implicit in Saint Thomas's own metaphysics of being as existential act but was never made quite explicit by Thomas himself in his philosophical analysis of the person.

Metaphysics makes it possible to ground the concept of personal dignity in the spiritual nature of the person. The Pope refers to "signposts of the spirit" which invite the mind to explore hidden truths. He speaks to discern the signs of revelation in the context of interpersonal communication. John Paul gives balanced emphasis to philosophy, Holy Scripture and the Church Fathers. Chapter Two, dealing with revelation, concerns itself at length with the Wisdom Literature of the Old Testament and it resonates with the Pauline letters. Chapter Four, which concerns itself with the relationship between faith and reason, opens with a discussion of Paul and the Acts of the Apostles and follows this with a survey of Patristic thinking from Justin and Clement to the Cappadocians (Saints Basil, Gregory Nazianzen and Saint Gregory Nyssa) and finally Augustine.

Interestingly Pope Benedict has a two volume publication on the "Church Fathers and Teachers" (2008 and 2010). The Fathers, he concludes, were highly original in welcoming the unlimited dynamism of reason and

infusing it with human dignity. But the doctrine of faith was a divine trust that God had committed to the church to be faithfully preserved and expounded. John Paul II softens this dualism between reason and faith. In the Wisdom Literature of the Old Testament, he tells us that we find a harmonious fusion of philosophy and theology. In the biblical Wisdom Literature and in the Greek and Latin Fathers, he shows no sharp distinction was made. The profound unity between the two disciplines preserved until after the time of Saint Thomas has regrettably been eroded in recent centuries.

"The relationship between theology and philosophy", he writes, "is best construed as a circle." God's word came to meet the human quest for truth and is best understood with the help of philosophy. The revealed word keeps philosophy from going astray and at the same time stirs philosophy to explore new paths that it would not have discovered without revelation. Reason and faith are therefore not competitors. Each contains the other. The simultaneity of faith and reason, in the pope's thinking, makes him reluctant to speak of either in isolation. Revelation and reason are two different paths neither sufficient unto itself. Revelation perfects the work of reason in its quest for ultimate truth. Faith and reason converge as they turn toward Jesus Christ, the eternal word of God, who is both Creator and Redeemer. Philosophical wisdom and theological wisdom have a deep affinity because both of them aim to explore reality in terms of its ultimate principles.

There are two forms of acquired wisdom. The Pope takes a step beyond Vatican I by referring to a higher synthesis of both disciplines through the gifts of the Holy Spirit. Vatican I made no reference to this higher synthesis. John Paul II in "Faith and Reason" shows great esteem for Saint Thomas. "The Church has been justified in consistently proposing Saint Thomas as a model of thought, and a model of the right way to do theology." He praises Leo XIII for having insisted on the incomparable value of the philosophy of Saint Thomas.

The Pope is also on guard against eclecticism, which takes over ideas from different philosophical systems without concern for their inner coherence. He also praises those recent philosophers who have adopted more contemporary currents of thought such as the method of immanence and phenomenology. For my own part, those philosophers especially the late Father Norris Clarke of Fordham have recognized themes implicit in Saint Thomas which had previously been ignored. His work is being continued at Ave Maria University in Naples, Florida, as well as at smaller but more traditional Catholic Universities offering much hope for the future of Catholic thought.

They have truly achieved a "creative retrieval" of Thomistic philosophy which includes real being understood as grounded in existential act. Father Clarke also identified and amplified the role of Platonic participation metaphysics. Participation metaphysics was further developed through the concept of the analogicity of being which more clearly expresses Thomas's doctrine of the limitation of existence by essence as well as the limitation of form by matter and the central role of action as the natural overflow of the act of existence in all beings. So all existential beings are intrinsically self-communicative, self expressing and self-revealing through action. This is the area of real progress in the implicit meanings of Thomas's writings. What is being drawn out is the necessity for relatedness for the full existential development of being.

Like Vatican I and the Popes of the last century, John Paul II enumerates a variety of philosophical systems that he sees as injurious to faith and to authentic wisdom. Unlike Vatican I which cites fideism and idealistic rationalism as potentially injurious to our faith, he targets eclecticism, historicism, scientism, pragmatism, and nihilism. All of these tendencies call into question the capacity of the human mind to transcend the factual and the empirical. They implicitly deny the possibility of metaphysics which paradoxically is a metaphysical statement in itself. Some forms of postmodernism, he adds, allege that "the time of certainties is irrevocably past" and contends that we must "learn to live in a horizon of total absence of meaning where everything is provisional and ephemeral." In settling for such an absence of meaning, says the Pope, philosophy subverts its own project.

Abandoning its pursuit of sure and abiding wisdom, it offers only a prescription for intellectual despair. However for John Paul II the negative role of the magisterium in condemning philosophical errors is secondary and subordinate. The primary purpose of magisterial interventions, he states, is to "prompt, promote and encourage philosophical inquiry." No such positive encouragement of philosophy can be found in the decrees of Vatican I. In fact, that council quoted the words of Paul in the letter to the Colossians warning the faithful against false philosophy and vain conceit.

So great is John Paul's confidence in reason that he is willing to use it critically in the field of theology. Without this rational component, he declares, faith could easily deteriorate into myth and superstition. He opposes biblical positivism, merely narrative styles, and hermeneutical theology that seriously studies the meaning of ancient texts but tends to dodge the hard questions of truth and falsehood. John Paul II contends that faith can stir reason to overcome any false modesty and to run risks with the goal of obtaining whatever is beautiful, good and true, arduous though this may be. In his concluding exhortation to philosophers he asks them "to have the courage to recover in the flow of an enduring valid philosophical tradition the range of authentic wisdom and truth - metaphysical included - which is proper to philosophical inquiry."

By comparing John Paul II with statements from Vatican I, it is possible to see the value of statements from Vatican I and the Pope's encyclical. Leo XIII took a positive step forward when he encouraged a revival of Thomistic philosophy. Vatican II made some further progress by pointing out the need for Catholics to be men and women of their time, familiar with modern currents of thought. John Paul II presupposes these earlier documents and in no way disrespects or disavows them. But he uses a different method and speaks with new accents. With his keen sense of the variety of human cultures and historical eras, he is able to enter into dialogue with many schools of thought. As a personalist and phenomenologist he brings out hidden resources in the great tradition with which he identifies himself.

If John Paul II is right, the light of revelation is no substitute for thought but is the strongest possible ally of reason and science. It can permeate the various disciplines, reenergizing them and bringing them into an organic unity with one another.

Let us turn now to science, scientism and metaphysics. If one word could suffice to name the disordered philosophy at the root of our current difficulties, it would be scientism. As noted earlier, scientism is the self-annihilating view that only empirical statements are scientifically meaningful which is itself not a valid scientific claim. In "Faith and Reason", Pope Paul II addressed the threat offered by the notion that the only valid forms of knowledge are those provided by the natural sciences.

Science relegates philosophical, religious, theological, ethical, and aesthetic knowledge to the realm of mere fantasy. Rejecting even such fundamental concepts as being, scientism impoverishes human thought. By embracing only simple facticity, leaving no space for the critique offered by the broader philosophical judgment, scientism is thus poised to dominate all aspects of human life through technological progress. As a result of this mentality, many think that if something is technologically possible it is therefore morally permissible. The Holy Father pointed out that such thinking widely circulates among the general culture as part of a supposedly enlightened view of the world.

The noted Catholic philosopher, Jacques Maritain, observed that scientism is more of a danger to non-scientists than to scientists. In an industrial civilization where manipulation of the world through science and technique is unreasonably dominant, the intellectual habit it inculcates is to grant rational validity and value to facts and figures only. He states: "Whereas scientists know at least what science is and what its limitations are, the non-scientists believe all the more naively that science is the only valid approach to reality." In fact it is increasingly prevalent to believe that "science has all the rational answers which human life can need." Precisely because it rejects some fundamental modes of reasoning, scientism closes itself off to the possibility of deeper meaning. Some people welcome this and some people are repelled by it.

Scientism causes an extreme dualism, where the life of faith and the life of reason exist simultaneously but separately. It is not unusual that Catholic scientists themselves consider compartmentalization as the arrangement most appropriate to both faith and reason, as though combining them would despoil both. (e.g., Kenneth Miller at Brown and Francis Collins, former head of the Genome Project.) Many who hold this view take it as a given that there should be a barrier or wall between the two, a sort of separation of church and science. For such a scientist, faith acts at best as a moral compass or guide, but the direction it provides does not breach the wall of separation and it is neither aided by nor aids reason.

As John Paul II and Father Stanley Jaki have noted: "Simple neutrality is no longer acceptable." We cannot continue to live in separate compartments pursuing totally divergent interests from which we evaluate and judge the world. Scientism thus divides us by harboring a fragmented vision of the world. Science without faith is subject to idolatry and false absolutes. Religion without science is subject to error and superstition. Working together each can draw the other into a wider world, a world in which both can flourish.

People have accused Catholics of resorting to the "God of the Gaps" argument "to retain their relation to faith and reason in the light of a reductive materialistic science which acknowledges only methodological naturalism as the preferred mode of investigation." This would eliminate any consideration of other non-reductive modes even though reductionism is for all practical purposes superannuated and ignores many questions many because of its incompleteness and inability to recognize the metaphysical nature and necessity of the answers which it proposes. Thus it appears that we have thrown the baby out with the bath water.

Is Thomas really relevant to modern science? Our answer is an unequivocal and emphatic yes. Jacques Maritain, Father Stanley Jaki, Pierre Duhem, and more recently, the brilliant Catholic physicist, Anthony Rizzi, in his "The Science Before Science" demonstrate in a most convincing and forceful manner that the principles of nature, of existence and of knowledge are firmly established in the work of Saint Thomas in ways that are fully consonant with faith.

Numerous popes over the past seven hundred years have pointed to Thomas as the model of reason. Could the insights of an earlier age seriously contribute to our current enlightenment? Scientism creates a false view of science and nature and it misleads as to what the purpose of science is and how science should be researched. We are no longer surprised with the difficulties different disciplines have in communicating with one another, but even within disciplines, hyper-specialization has taken its toll. In academia this is expressed in terms of sub-sub fields of particular knowledge, each with its own principles that have no meaning outside the narrow limits of a small community. In school textbooks, this is expressed in the way subjects are taught, more often as serial presentation of a panoply of topics than as a cohesive and ordered body of knowledge. How can we recover the proper view of science? To do this we must first acquire a historical view to see how instrumental the Church has always been in effecting a creative synthesis of faith, reason and science.

The neglected development of natural philosophy over the past few centuries was not always the case. In order to overcome the crisis of reason, we must render much needed attention to the foundation of natural philosophy. If we are to understand more fully who we are and how we are to act, we must be sure of the nature of being and the existence of the world. Our history, and especially that of Thomism, provides the basis on which we can flesh out our conception of science while retaining our common sense view of reality. Virtually all scientists today are unfamiliar with the basic principles of natural philosophy. The modern training of philosophy focuses almost exclusively on empirico-mathematical tools of the trade. Larger questions not only go unaddressed, they are often unasked. The implication is that it is meaningless to go beyond the unquantifiable. Because they are unfamiliar with the foundational principles of science, most modern scientists shun any serious pursuit of deeper meaning or even think much about the implicit philosophical assumptions of their own methods. This is a major error and at its foundation is the influence of American Pragmatism as articulated and advanced by William James, Charles Sanders Pierce, John Dewey, and more recently, the late Richard Rorty. Dewey's impact on American education has been devastating.

In a 2004 publication "The Science Before Science" Anthony Rizzi undertakes to reinvigorate his fellow scientists understanding of the foundations of science. A highly trained and accomplished physicist well skilled in the methodology of modern scientific research, Rizzi has been able to amplify and clarify Maritain's insights so that he can introduce and train his colleagues in the principles of natural philosophy that their modern education omitted. Rizzi clearly establishes that to do science at all requires an implicit acceptance of the basic principles of realism. His work goes beyond Maritain's in its direct conversation with workaday scientists. While Maritain had some training in biology, his work is most familiar to philosophers.

This is because his most comprehensive and greatest work was his philosophical publication "The Degrees of Knowledge." By comparison, Rizzi, like the late Father Jaki, is a professional published physicist who has lived and worked actively in the milieu of modern science and he has conversed effectively with many modern scientists.

As Rizzi points out, many scientists are unaware of the metaphysical assumptions they have absorbed through training. They have become fully acculturated to the practice of jumping immediately to an empirico-mathematical view. In fact many in modern science act as though empirico-mathematical knowledge is the only possible valid knowledge. Rizzi elucidates, like Maritain before him, the logical fallacies introduced by Descartes. The empirio-mathematical method is useful and powerful in itself, but to be truly scientific one can lose sight of the larger picture, the complete view of physical reality. Jaki's originality is in pointing out that the mathematical world model is inherently incomplete. According to his theorem, no sufficient broad set of arithmetical propositions contains within themselves the proof of their own consistency. Although this seems to be confined solely to mathematics (Godel's work centered on the system of integers), there is a meta-mathematical corollary. Applying this to a whole gamut of mathematics, such consistency cannot be proved within any set, but rather another set of assumptions is required, a meta-mathematics if you will. Yet to show the consistency of this meta-mathematical system, a further meta-mathematical system will be required. So the process continues

in an endless regression which means that in each set of the rules for the mathematical symbols points beyond itself. From this it follows as Jaki argued, that even in "the totally abstract thinking of theoretical physics there is a boundary present as in all other fields of speculation."

Since scientific cosmology is highly mathematical and this mathematical apparatus must be subject to Godel's theorem, it follows there can be no complete a priori mathematical synthesis or explanation of the cosmos. Thus no scientific cosmology can have its proof of consistency within itself as far as its mathematics goes.

For Jaki, the all important implication is that scientific cosmology can never be a threat to the fundamental contingency of the universe because it can never offer a complete methodological explanation of all of existence. Put another way, physics can measure, quantify, count, and calculate but it cannot address the ultimate and/or theological questions because its formal object is not the study of Being as Being which is the proper formal object of metaphysics. Father Jaki tells us that the lack of a robust response to Godel's theorem stems from the fact that the climate of thought in our times is not at all favorable for a recognition of reason's ability to bring within sight the contingency of the universe and its *raison d'être*, its having been created by a Being truly necessary. Jaki further develops his cosmological extension of Godel's theorem in subsequent publications especially in his Gifford Lectures in 1974-1976 published as a book in 1978 titled "The Road Of Science And The Ways To God." Science as Jaki demonstrates unequivocally is incomplete in articulating the world view which it presupposes as well as in its theoretical and experimental progress. He further argues that science is also limited as a discipline because it needs to be completed by other fields of study (Theology and Philosophy); hence the need for faith and reason in addition to science as articulated and developed by revelation, metaphysics, epistemology and ethics. This has been possible only in the West as only the West has consistently seen the world as created by God *ex nihilo* with the world subsequently governed by intelligible laws

which can be understood by reason because the intellect and the will of man have been created analogically in the image and likeness of God. As Jaki noted, all other civilizations and cultures, including the Greeks, did not reach this level of understanding because their attempts to develop a complete experimental and predictive science failed and resulted in stillbirths because of their false metaphysical views of the world as an organism with repetitive cycles, as a materialistic machine with total determinism, as an idealistic mathematical construction, or as the product of some immanent process existing since eternity. There is good reason for the lengthy treatment Duhem, Jaki and Razzi give to the basic principles of unity, order and intelligibility. Before summarizing our journey, we will look at the implication of their work and the necessity of metaphysics as a principle of order in a university curriculum. The neglected development of natural philosophy over the past few centuries had resulted in destructive trends like relativism, scientism and positivism.

In order to overcome this crisis of reason, we must render much needed attention to reestablishing the foundations of natural philosophy. If we are to understand more fully who we are and how we are to act, we must first be sure of the nature of being and the existence of the world. If our science rejects any notion of unity, order and intelligibility in the natural world, it will be impossible to retain a sense of those in the subjects that depend on knowledge of the natural world. Thomism, however, provides the basis upon which we can flesh out our conception of science while retaining our commonsense view of reality. Virtually all scientists today are unfamiliar with the basic principles of natural philosophy. The modern training of scientists focuses almost exclusively on the empirio-mathematical tools of the trade. Larger questions not only go unaddressed, they are often unasked. The implication is that it is meaningless to go beyond the unquantifiable. Most modern scientists avoid any serious pursuit of deeper meaning or even think much about the implicit philosophical assumptions of their own methods.

"Science Before Science" introduces modern scientists to the principles of natural philosophy that their modern education omitted. Rizzi is a professional published physicist who has lived and worked actively in the milieu of modern science and he has conversed effectively with modern scientists. Rizzi informs other scientists that what is lacking is an explicit understanding of the basic principles on how to do science which necessitates increasing their understanding of epistemology and reality. He informs us that core principles such as commonsense notions that things exist and certain axiomatic truths such as the principle of identity, the principle of sufficient reason, the principle of non-contradiction which is the negative version of the principle of identity, the principle of substantiality, the principle of induction, and the principles of causality and finality are just as relevant and necessary for logical and coherent thinking as they were in Aristotle's and Saint Thomas's time. They are necessary for a comprehensive and adequately complete understanding of reality which must include order, unity and intelligibility. Without these basic philosophical concepts a comprehensive knowledge of reality or existence is not possible.

Let us return now to Father Jaki. One of Jaki's central theses is that it was not coincidental that the birth of science as a self-perpetuating field of intellectual endeavor should have occurred in a Catholic milieu. Certain fundamental Christian ideas have been indispensable in the emergence of scientific thought. Non-Christian cultures on the other hand, did not possess the same philosophical tools, and indeed were burdened by conceptual frameworks that hindered the development of science. In "Science and Creation", Jaki extends his thesis to seven great cultures: Arabic, Babylonian, Chinese, Egyptian, Greek, Hindu, and Mayan. In these cultures, as noted earlier, Jaki explains science as having suffered a "stillbirth."

Such stillbirths can be accounted for by each of these cultures conceptions of the universe and of their of belief in a transcendent Creator who endowed his creation with consistent physical laws. To the contrary they conceived of the universe as a huge organism dominated by a pantheon of deities and destined to go through endless cycles of birth, death and rebirth. (Sort of

like Nietzsche's "Eternal Return.") This made the development of science impossible. The animism that characterized the ancient cultures which conceived of the divine as immanent in created things hindered the growth of science by making the idea of constant natural laws foreign. Created things had minds and wills of their own - an idea that all but precluded the possibility of thinking of them as behaving according to regular fixed patterns. One has only to compare the Babylonian Creation myth, Enuma Elish, with Genesis to see the clear difference between a society confident of their ability to understand the cosmos as opposed to one in which the God Marduk establishes himself as king over the other gods by defeating Tiamat, the chaos monster.

Christianity, since it reposed the divine strictly in Christ and in a Holy Trinity that transcended the world, avoided any type of pantheism and allowed Christians to view the universe as a realm of order and predictability. Jaki does not deny that these cultures made some impressive technological contributions. His point is that we do not see the flowering of formal and sustained scientific inquiry emerging from their endeavors. Their achievements are better described as lore, skills, wisdom, crafts, technologies, engineering, learning, or simply knowledge. No more striking is the shutdown of the mind in Islam between the 9th and 12th centuries. It has never recovered to this day.

During this time period, reason, reality and the intelligible nature of God was questioned to the point where almost eight hundred years later there has been no Islamic Renaissance, Reformation, Counter Reformation, or Enlightenment and formal science has failed to develop to the point of alleviating gross intellectual and material impoverishment. There has been continued developmental arrest because of the persistence of a totally irrational metaphysics which denies the efficacy of reason to know reality and is committed to a voluntarism by a capricious and unknowable Deity.

A final word on the relationship between philosophy and science as refracted through the lens of Thomistic metaphysics. According to the best scholastic doctrine, particularly as found in the writings of Saint Thomas, theology and philosophy are distinct and autonomous. Since theology is the supreme science, all other sciences including philosophy must be subject to it. A philosophy may draw inspiration from revelation and remain true. And if true, this truth is due to the fact that it is valid philosophy. In discussing the classification of sciences, it was seen by the middle of the thirteenth century that there had been developed a hierarchical concept of the sciences which posited metaphysics or First Philosophy as the ordering science.

Metaphysics, the science of being qua being is alone capable of providing a satisfactory rational principle of order for the curriculum of a university i.e. an institution of higher learning engaged in teaching and investigating universal knowledge. This is true because metaphysics, hierarchically, is the first science in the natural order and by its very nature the ordering principle of the special more limited sciences. There is no possibility of genuine conflict between metaphysics and theology, as a Catholic university should require both a rational and a supra-rational principle of ordering. One of the most important points to be emphasized in connection with the Aristotelian/Thomistic concept of metaphysics, is that this science is not a systematic arrangement of other sciences, but it possesses its own distinctive nature and object. While metaphysics concerns itself with all beings whatsoever (being is its formal object) it concerns itself in this treatment only with those determinations of being which are either formally contained within, or essentially connected with, its own particular abstraction; which is to say that the formal objects of metaphysics are those forms or modifications of real entities which are sensible initially. The formal object of metaphysics is "being disengaged and isolated from sensible being viewed as such and set apart in its pure intelligible and immaterial abstraction from matter." Disorder is the chief characteristic of higher learning today. It has no ordering principle. It lacks the real unity which can be achieved only by a hierarchy of subjects indicating which are fundamental and which are subsidiary. It is important to remember that the more specialism succeeds, the more it isolates the learner and narrows the

possibility of communication with other learners so that the ideal society of the specialist educator would logically be one in which nobody knew anything which anybody else knew. It is important to stress that wisdom is an addition to and not a contradiction of science. Real science and a naturalistic philosophy are simply two distinct things and no matter how desperately the positivist may struggle to identify them they remain distinct and make it entirely possible to retain and strongly emphasize the one while rejecting the other.

Finally, we can summarize where we have been and what we have reviewed. A historical overview of faith, reason and science reveals clearly that science and scholarship are never carried out in a vacuum. The Christian religion, hand in hand with various philosophical outlooks, has motivated, sanctioned and shaped large portions of the Western scientific heritage. Modern Christians ought to drink deeply at the well of historical precedent. If we do, we will never feel intimidated by positivists and others who deny that religion has any role in genuine scholarship.

Historical science has been guided by the principle of uniformity - that the present is key to the past. We postulate causes for past events by seeking an analogy among present events. Similar events warrant the assumption of similar causes. The principle of uniformity is open to either natural or intelligent causes. Applied to the origin of the cosmos and of life, the principle of uniformity requires us to find an analogy in the present to the creation of information-rich structures such as sub-atomic particles and DNA molecules. As has been noted by many scientific observers, there are no information-rich structures created by natural processes.

However experience gives us a wealth of examples created by intelligent agents. Hence the principle of uniformity suggests that there is something rather than nothing because of an ultimate intelligent agent. To arrive at such knowledge there must be a rapprochement of Faith, Reason and Science. Rejecting this conclusion as beyond the bounds of science, aided by faith and reason, gives rise to the suspicion that the only alternative is methodological naturalism. That is too narrow and limited a metaphysical view and in the grand scope of history that claim is itself a temporary

aberration already beginning to fade. We must again learn to understand that the great theological, metaphysical, epistemological, and ethical insights are just as rational and just as true as experimental knowledge of the realm of natural sciences and technology.

They are perhaps even truer because they have a more decisive significance for the humanity of man. Once more drawing on the work of the recently deceased great historian and philosopher of science, we can cull the following truths apropos the relation of faith, reason and science from his many, many books and presentations as well as from his only biographer Paul Hafner:

1. There is no intrinsic contradiction between Christian faith and natural science.
2. Science is of itself insufficient for human growth in understanding and human development.
3. Scientific progress is part of human and spiritual progress.
4. Just as grace perfects nature in a dynamic partnership, so also is Christian faith like a guiding star which leads science to a deeper and more perfect understanding of its role within human experience.
5. Science cannot be regarded as having so much autonomy that its applications and philosophy may be followed even if they contradict faith, morals and the dignity of the human person.
6. The Magisterium of the church can and should pronounce on scientific issues which have a strong bearing on faith or morals or have implications for other aspects of Christian life.
7. It would be rash to attribute to God that which is still inaccessible to science, for if and when science has achieved a discovery of the stated areas, the power of God may appear to be reduced. This is the "God of the Gaps" error.

8. It is an error to hold that in the order of created things there is immediately manifested to the human intellect something divine in itself such that it belongs to the Divine Nature.
9. Science arrives at some truths, but not at all truth, especially if it is not measurable, quantifiable or mathematically expressible.
10. Notwithstanding our increasing theoretical and applied knowledge in science and technology, it would be an error to exclude immediate and direct intervention of God in His creation in a miraculous way, for although we are bound by the laws of nature, God is not.
11. The mediation of philosophy, and especially of metaphysics, is required in relating Christian faith and natural science.
12. Among the chief implicit presuppositions of science are that the material entities observed have a coherent rationality and are governed by consistent laws forming a consistent whole.

For the last fifty years, virtually all historians of science with integrity have concluded that the Scientific Revolution was indebted to the Church. Revisionist history is gradually being repudiated for the propaganda that it has always been. The Catholic contribution to science went well beyond ideas - including theological ideas - to accomplished practicing scientists many of whom were priests.

For example, Father Nicholas Steno is often identified as the father of Geology. The father of Egyptology was Father Anthony Kircher. The first person to measure the rate of acceleration of a freely falling body was a priest, Father Giambattista Riccoli. Father Roger Boscovitch is often credited as the father of modern atomic theory. He was a genuine polymath, accomplished in atomic theory, optics, mathematics, and astronomy. He was elected to learned societies and prestigious scientific academies across Europe.

Father Boscovitch was also an accomplished poet composing Latin verse under the auspices of Rome's prestigious Accademy Degli Arcadi. It is little wonder that he has been called "the greatest genius Yugoslavia has ever produced." Benedict the XIV, one of the most learned Popes of his day, turned to him for his technical expertise in 1742 after concerns had arisen that cracks in the dome of Saint Peter's Basilica portended possible collapse. He accepted Father Boscovich's recommendations that five iron rings be used to circle the cupola. Father Boscovich's report, which investigated the problem in theoretical terms, earned for him "the reputation of a minor classic in architectural statics." A modern scholar states that this accomplished priest gave "the first coherent description of an atomic hypothesis" well over a century before modern atomic theory emerged." A recent historian of science calls Father Boscovich "the true creator of fundamental atomic physics as we understand it." Jesuits so dominated the study of earthquakes that seismology became known as "the Jesuit science." And that is far from all. Even though some thirty-five craters on the moon are named for Jesuit scientists and mathematicians, the Church's contributions to astronomy are all but unknown to the average educated American. The Roman Catholic Church gave more financial aid and social support to the study of astronomy for over six centuries, from the recovery of ancient learning in the Middle Ages into the Enlightenment, than any other or probably all other institutions. Still the Church's true role in the development of modern science remains one of the best kept secrets of modern history. As we have seen, Catholic theological ideas provided the basis for scientific progress in the first place. No serious scholar today will repeat the tired mythology about the alleged antagonism between religion and science. The appearance of modern science in the Catholic environment of Western Europe was no coincidence after all.

Shortly after putting these ideas together Benjamin Wiker, a brilliant Catholic author frequently seen on EWTN along with Scott Hahn, released his latest book "The Catholic Church And Science" in which he proposes seven areas of common confusion which arose because of a lack of

sufficient information or the refusal to report the information available that has wrongly characterized the Church as an adamant foe of science when just the opposite is the case. He does not exonerate the Church when She was in error and acted inappropriately, but he does clarify those situations which have been perpetuated as factual for far too long. The information is exciting and comprehensive. The narrative plot sustains interest and is reasoned flawlessly. The conclusions validate Hegel's conviction that "the truth is the whole."

In a rightly balanced college curriculum, metaphysics would be a mandatory course. Too often, however, because of a constricting fear to face what may have been deemed too difficult, the study of metaphysics has been neglected and philosophy itself has ceased to be the cornerstone of education no longer the logical and necessary bridge from faith to science. Yet it is idle to assume that the mere history of thought can be accepted as any substitute for a metaphysical system. Fortunately there has been a Renaissance of sorts with respect to Thomistic philosophy especially among Dominican Theologians. As a thoroughly coherent and complete system it must hold an unchallenged position in Catholic education allowing for its further development to meet the ever changing scientific paradigms it will encounter in the future. Not merely has this system served as a sound basis of human thought and a rational support for supra-natural faith, but the application of its principles by master minds to the most varied of modern problems has led to many new and brilliant developments.

The time has come when every evidence has been supplied the world that natural science alone cannot guide civilization aright. On the other hand, the false lights of deceptive modern philosophies have definitely led men into the destructive quicksands of such Godless ideologies as Marxism, Communism, Fascism, logical positivism, atheistic existentialism, linguistic analysis, and postmodernity, with its moral relativism and nihilistic Darwinism - all related in their common errors.

Unfortunately these philosophical theories are still being taught in many of our universities as if they had equal value and validity to young, impressionable and unsophisticated students. Natural law, inalienable human rights, and the unchanging moralities based on nature and God are too frequently glibly flouted in classrooms that should be sacred to the truth. Our renewal of a right way of life for nations and individuals must therefore be dependent on a revival of thought that is based on sound methods of teaching and on the best wisdom of the past. These methods must emphasize that there is no intrinsic conflict between Faith, Reason and Science.

In summary, the relation of faith and reason is a unique blend of the positive elements of both rationalism and fideism, of presuppositions and evidence. Thomas stresses the need for reason before, during and even after believing. Even the mysteries of faith are not irrational. On the other hand, Aquinas does not believe that reason alone can bring us to faith in the belief of God. This is accomplished only by the grace of God. At best it can only be supported by reason. Thus reason and evidence are never coercive of faith. There is always room for non-believers to not believe in God even though a believer can construct a valid proof that God exists. For reason can be used to demonstrate that God exists but it can never in itself persuade someone to believe in God. Only God can do this working by his grace in and through free choice. This unique synthesis of faith and reason provides further reason to believe that old Aquinas should never be forgotten.

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